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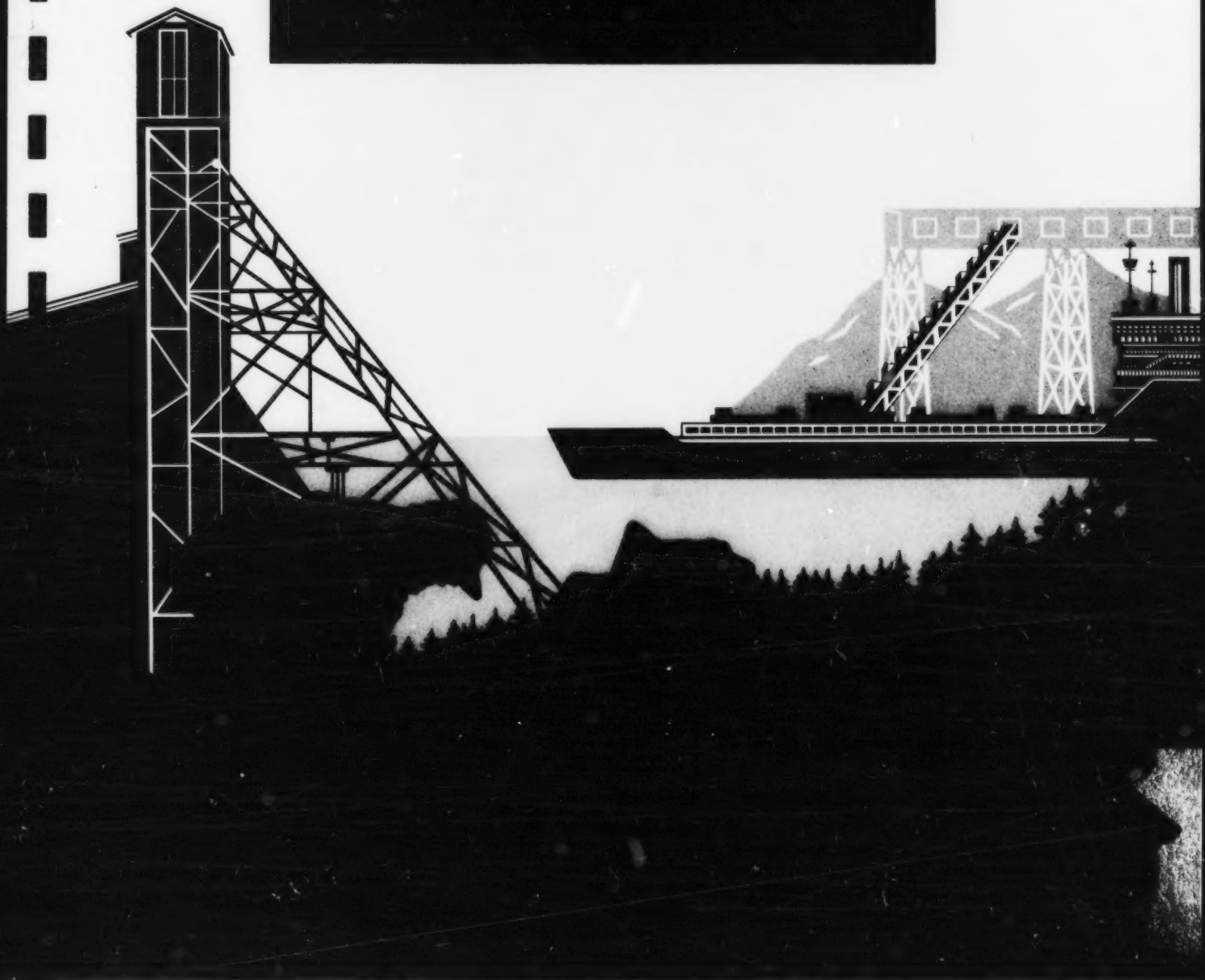

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This report is one of many initiated by the program subcommittees of the Canada - Nova Scotia Mineral Development Agreement. The work represented here by this report and other projects fulfills the Agreement's mandate to promote and strengthen the mineral industry of Nova Scotia.

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Printed in Nova Scotia

91-05156/

NOVA SCOTIA DEPARTMENT
OF MINES AND ENERGY

OPEN FILE REPORT
90-022
GYPSUM IN THE MURCHYVILLE AREA (11D/14D), HALIFAX COUNTY

by

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Canada - Nova Scotia Mineral Development Agreement

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1990

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INTRODUCTION

The Murchyville gypsum area is located 3 km east of the Village of Elderbank, Halifax County (11D/14D) (Fig. 1). Using physical data, as well as background knowledge accumulated during the Canada-Nova Scotia Mineral Development Agreement (1984-1990), 12 areas were selected from a total of 189 gypsum/anhydrite occurrence areas identified in the Province. These 12 have good geological, geographical and cultural potential for possible resource development. Murchyville was the first area selected for more detailed study.

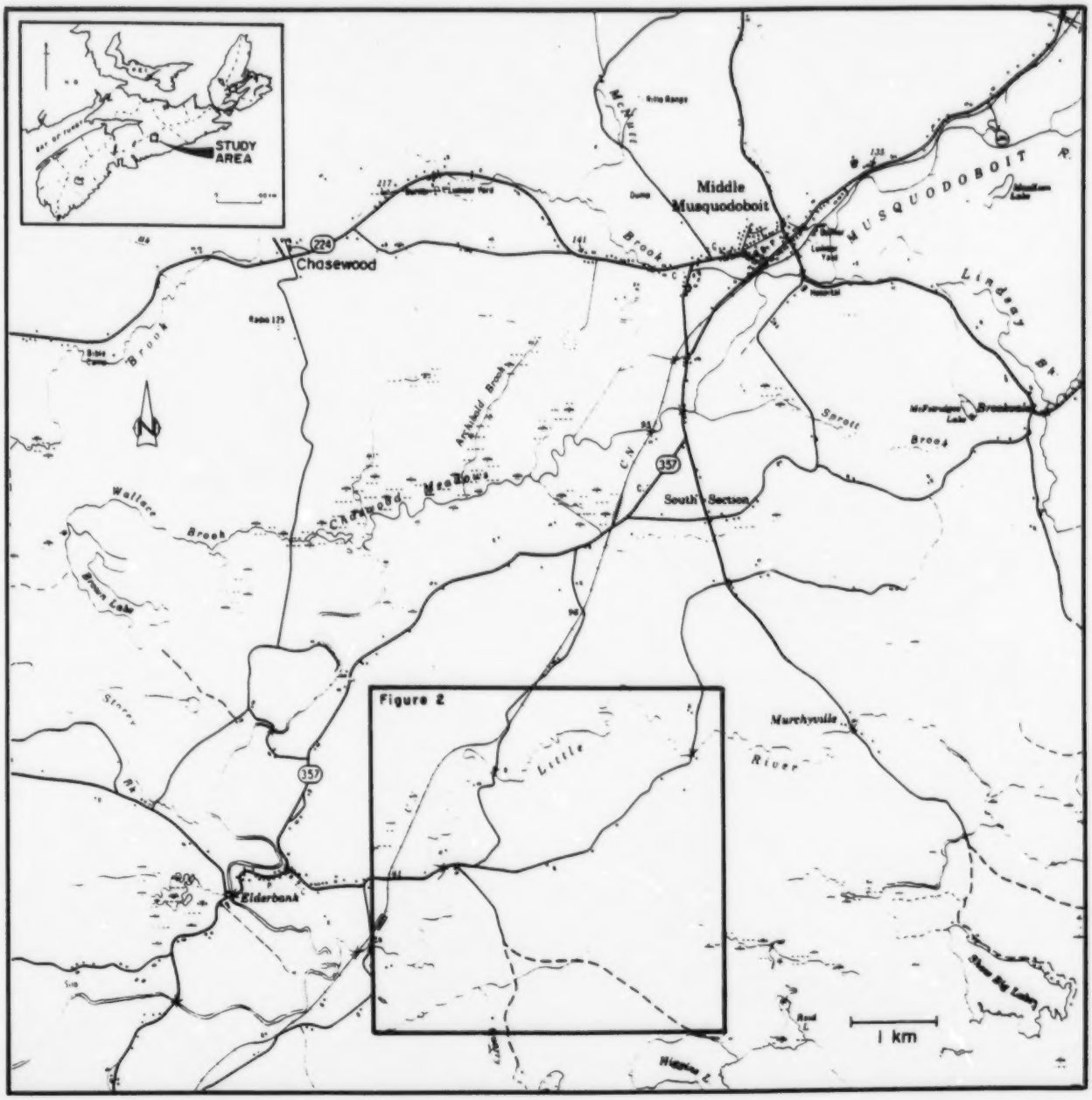

Figure 1. Location of Murchyville gypsum study area, Halifax County.

Drillhole data taken from three holes (MG-42, MG-43, MG-70; Appendix 1) completed by Getty Mines Ltd. between 1974 (Comeau, 1974) and 1976 (Boehner, personal communication) provided the only subsurface information on the area (Fig. 2, in pocket). No obvious karst topography can be seen in the area although a few gypsum exposures are known to occur along Quarry Brook just west of MUR-90-2.

Commencing in mid-July of 1990 a small drilling program by the Nova Scotia Department of Mines and Energy was carried out to determine the gypsum resource potential in the Murchyville area. A total of 18, HQ size holes were collared in a rough grid pattern which extended 3000 m along the local geological strike. Fourteen of these holes encountered the expected gypsum/anhydrite horizon, three failed to reach bedrock and one hole was stopped in interbedded siltstones and dolostones which presumably overlie the sulphate horizon. Completed in early October the program established that significant resources of high grade gypsum are present in the Murchyville area.

GENERAL GEOLOGY

Regional geological mapping by Giles and Boehner (1982) indicated that much of this area is underlain by strata of the Early Carboniferous Windsor Group (Fig. 2). The sulphate-dominated Carrolls Corner Formation which strikes northeast-southwest through the area is overlain to the northwest by the interbedded sulphates, carbonates and clastics of the Elderbank and Green Oaks Formations. Interbedded clastics, carbonates and sulphates of the Meaghers Grant Formation underlie the Carrolls Corner Formation to the southeast. These are in turn underlain by the Gays River Formation carbonate and subsequently by metamorphic rocks of the Meguma Group.

Locally, outcrops of any sort are scarce and therefore the geological contacts of Giles and Boehner (1982) are approximate. Some of these have been modified as a result of the 1990 drilling results. The Windsor Group strata, including the gypsum horizons, appear to dip gently to the north-northwest at $< 10°$ across the study area, although some exceptions to this trend were noted. These exceptions may reflect paleotopographic features commonly seen elsewhere in the Shubenacadie and Musquodoboit Basins (e.g. Meaghers Grant, Carrolls Corner) or minor faulting.

DRILLING PROGRAM

Between July 17 and October 4, 1990, a Nova Scotia Department of Mines and Energy, Longyear 38D wireline diamond drill was used to carry out a drilling program consisting of 18 drillholes totalling 113 m (Appendix 2). Drill rods of NQ size produced drill core 1 7/8" in diameter. Drill core was logged, split and sampled on site. The remaining core is presently stored at the Department's Core Library in Stellarton, Pictou County.

ANALYSES

Representative samples of all the gypsum and anhydrite intervals were taken by splitting the drill core longitudinally and bagging half of the core at given intervals for later analyses. Samples were taken to the Minerals Engineering Centre at the Technical University of Nova Scotia in Halifax for analyses.

Samples submitted were air dried, pulverized and tested for moisture, combined water, SO_3 and NaCl (Appendix 2). The percentages of gypsum and anhydrite were then calculated. The NaCl content was determined because of its deleterious effects in the gypsum wallboard manufacturing process.

DISCUSSION OF RESULTS

Although insufficient drilling has been carried out in the Murchyville area to determine the gypsum reserves available there, this program indicates that a significant gypsum resource is present. Drillholes were spaced 4-500 m apart and therefore cannot be used to accurately calculate reserves; they do however provide good information on grade of gypsum and stratigraphic correlation between holes.

The best gypsum sections seen in the area are found along the contact between the Carrolls Corner and Meaghers Grant Formations. Towards the northwest the thicker sulphates of the Carrolls Corner Formation are interfingered with interbedded horizons of carbonates and clastics of the Elderbank Formation. At some point enough of this

material will overlie the thick gypsum units to prevent resource development, however further drilling must be carried out to determine that point.

Along the strike of the best sulphate horizons the area is traversed by the Little River to the west. Drilling proceeded from west to east during the program and was stopped before an eastern end to the resource area was defined.

Overall, of the 18 holes completed, two encountered thick sequences of clastic and carbonate interbeds presumably of the Elderbank Formation, three holes encountered thick (>20 m) overburden and were stopped when circulation was lost. The remaining 13 drillholes encountered significant thicknesses of gypsum (Figs. 3 and 4, in pocket) and have been used to make the following determinations. Average overburden thickness of these holes was 11.6 m. Average thickness of clastic and carbonate interbeds was 6.97 m. The gypsum intervals used to calculate average grade and thickness were only those found above significant anhydrite intervals. Average composite thickness of gypsum intervals in the 13 holes was 38.02 m and from these intervals the weighted average grade was: gypsum 87.2%, anhydrite 4.23% and NaCl 0.013%. As is seen in all Windsor Group gypsum deposits the remainder of the rock is composed of intermixed silt, clay and carbonate material.

Although computer modeling of this area will eventually be undertaken, initial three point calculations have been used to determine the strike and dip of the sulphate horizons encountered. Generally the strike is northeast-southwest and the dip is $<10°$ to the north. Some dip reversals indicate either folding or minor faulting has occurred in the area.

CONCLUSIONS AND RECOMMENDATIONS

Although limited in extent and insufficient in the number of holes to allow reserve estimates, the Murchyville drilling program can be used to indicate the volume of gypsum resources present in this area. This information could be used as the basis upon which a further, more detailed, drilling program could be planned. Using the distance along strike between MUR-90-2 in the west and MUR-90-17 in the east as 3160 m, a conservative 500 m as the width of a possible resource area and the average composite thickness of gypsum intervals as 38 m, a conservative volume of 60.04×10^6 m^3 of gypsum are present. Using a factor of 2 t of gypsum per cubic metre, a possible 120.08 Mt of gypsum may be present in the Murchyville area. A further reduction of this estimate by one-half as a safety margin would produce a number equivalent to the production of National Gypsum (Canada) Ltd.'s East Milford Quarry during the first 30 years of operations.

Shipping possibilities exist out of both Halifax Harbour and Sheet Harbour. Both areas are located approximately 65 km away from the Murchyville area. Halifax Harbour has long been the site of National Gypsum's gypsum shipments. Sheet Harbour on the other hand is a new facility with a 150 m long wharf with 10 m of water and a 40 ha site which is at present used to ship Scott Maritime's kraft paper via barge to the United States and Westminer Resources lead-zinc concentrate to Europe.

REFERENCES

Comeau, R. L., 1974: Lead, Meaghers Grant, Halifax County, Nova Scotia; Getty Mines Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11D/14D 27-H-44(02).

Giles, P. S. and Boehner, R. C., 1982: Geological map of the Shubenacadie and Musquodoboit Basins, Central Nova Scotia; Nova Scotia Department of Mines and Energy, Map 82-4, scale 1:50 000.

APPENDIX 1.

DRILL LOGS FOR DIAMOND-DRILL HOLES MG-43 AND MG-70

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Meaghers Grant	**Elevation:**	m
Hole Number:	MG-43	**Azimuth:**	
Latitude:	44°58'22"	**Dip:**	90°
	3° MTM 485310 m	**Started:**	
Longitude:	63°11'11"	**Completed:**	
	3° MTM 4979740 m	**Ultimate Depth:**	263.65 m
Datum:	Sea level		

Depth (m)	Formation
0-15.85	Overburden, not recovered
15.85-45.42	Gypsum, dark grey, selenitic, cut by numerous satin spar veinlets and irregular stringers, locally highly fractured, has a nodular texture, there are areas with irregular brown dolomitic patches
45.42-45.87	Light grey-green mud, silty, very well indurated, possibly a mud seam
45.87-47.24	Gypsum, coarse, selenitic, colour is light to medium brown
47.24-48.46	Dolomite, medium brown grey, finely laminated, intimately intermixed with gypsum
48.46-59.74	Gypsum, coarse grained selenitic, medium grey brown, cut by numerous satin spar veins, there are a few relic anhydrite fragments towards the base, there are some thin bands of silty shale which is variably calcareous, the colour of the shale is a dark to medium grey
59.74-63.70	Siltstone to fine grained sandstone, colour is a medium grey green, cut by thin 2 cm satin spar veins and locally has a few thin bands of gypsum, the siltstone has a shaly fracture, the sandstone is massive and nonbedded
63.70-65.53	Limestone, light grey, very highly calcareous towards the base, it has a few interlaminations of highly calcareous red silt, is cut by a few thin satin spar veins, laminations are 80° to the core axis, the unit is transitional below to a red siltstone, this unit is similar to units found in a similar stratigraphic position in holes drilled by Noranda and Imperial Oil in the Musquodoboit Valley, this unit is located approximately at the contact between the overlying evaporite and an underlying thick clastic succession
65.53-67.06	Red siltstone finely laminated with a shaly fracture, moderately calcareous and has a few highly calcareous white laminations
67.06-68.58	Vent blockage recovery probably a solution cavity or a mud seam, the fragments recovered are thin ground blocks of highly calcareous red limestone
68.58-73.00	Finely interlaminated and crossbedded siltstone and highly calcareous limestone
73.00-73.61	Interlaminated grey-green shaly siltstone and highly calcareous white limestone
73.61-93.88	Sandstone, light grey, locally calcareous, has a few dark shaly laminations 85° to the core axis, basally there are a few thin shaly interbeds, there appears to be a transition sequence into the next unit, the unit is locally transitional to a very silty calcareous limestone
93.88-148.44	Interlaminated and interbedded dark grey, shaly siltstone and light grey, fine grained sandstone

148.44-151.18	Sandstone, light grey, there are a few dark shaly laminations
151.18-162.76	Dark grey silty shale, very finely laminated, 1-16 mm 80° to the core axis, there are a few thin, grey sand laminations
162.76-244.75	Interbedded 1-10 cm dark grey, shaly siltstone and light grey, fine- to medium-grained sandstone
244.75-246.89	Coarse grained 1-10 cm flat pebble conglomerate in a light grey sandy matrix, the pebbles are Meguma slate fragments
246.89-258.17	
258.17-263.65	Halifax Slate, dark grey, well developed cleavage 20° to the core axis
263.65	End of hole

Drilling Performed by: Getty Mines Limited **Geologist:**

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Meaghers Grant	**Elevation:**	64.01 m
Hole Number:	MG-70	**Azimuth:**	
Latitude:		**Dip:**	90°
		Started:	December 31, 1975
Longitude:		**Completed:**	January 11, 1976
		Ultimate Depth:	135.94 m
Datum:	Sea level		

Depth (m)	Formation
0-14.33	Overburden
	Windsor Group
14.33-51.15	Gypsum: grey to grey brown, medium to coarsely crystalline, massive, generally nonporous; abundant 2-5 mm seams of white satin spar and clusters of grey brown; selenite crystals; numerous seams of calcareous mudstone; bedding generally 60-70° to core axis; at 14.54-14.69, 15.91-16.15, 16.92-17.43, 18.29-18.65: calcareous mudstone, grey brown to grey buff, fine textured, intermixed with seams and patches of gypsum; at 38.71-40.23: gypsum-limestone breccia, 2 mm - 3 cm blocky gypsum fragments in a variable gypsum-limy mudstone, massive grey buff, fine textured matrix; at 46.02 and 48.77: gypsum with patches of grey-brown, medium crystalline anhydrite, minor open gashes 2-3 mm wide, several 2 mm white nodular borate inclusions
51.15-54.80	Sandstone: grey, grey-green, fine grained quartz sandstone interbedded with minor, dark grey siltstone, thinly to massively bedded; numerous 0.5-1.5 cm seams of rose coloured satin spar seams paralleling bedding at 80-90° to core axis
54.80-55.63	Gypsum and siltstone (transitional): interbedded coarse crystalline gypsum, satin spar and grey-black siltstone
55.63-56.54	Gypsum: grey, coarse crystalline, massive, nonporous; minor siltstone inclusions
56.54-57.30	Dolostone: medium grey, fine to medium crystalline, massive dolostone; numerous satin spar seams throughout
57.30-58.25	Dolostone: yellow brown, fine to medium crystalline, massive; numerous contorted flames and seams of grey and red-grey silt; minor orange colour satin spar seams
58.25-58.83	Dolostone: medium grey, fine to medium crystalline, massive dolostone with numerous thin seams of reddish siltstone throughout
58.83-60.41	Siltstone: reddish brown, fine textured, thinly laminated; bedded at 80-90° to core axis; numerous hematite stained seams of satin spar parallel to bedding
60.41-61.33	Gypsum: grey, coarsely crystalline, massive, nonporous
61.33-62.67	Sandstone: grey to reddish-grey, fine grained quartz sandstone with dolomitic cement; thinly to massively bedded at 80-90° to core axis; minor crossbedding
62.67-63.86	Siltstone: reddish brown, fine textured, thinly laminated; bedding at 80-90° to core axis

63.86-64.25	Dolostone: medium grey, fine crystalline, massive; numerous 1-2 mm brachiopods, rarely gastropod, fossils intact, hollow to calcite lined and filled; abundant oolites with quartz sand centres, minor uncoated quartz clasts; massively bedded; minor moldic cavities often containing pyrite and calcite crystals
64.25-64.98	Siltstone: intermixed grey and grey-black siltstone with minor sandy lenses
64.98-66.66	Dolostone: as described at 63.86-64.25
66.66-71.02	Sandstone: medium grey, fine grained, massively bedded quartz sandstone commonly with a dolomitic cement within close proximity to carbonate horizons; minor siltstone seams bedded at 80-90° to core axis
71.02-71.63	Dolostone: as at 63.86-64.25
71.63-81.69	Sandstone: as at 66.66-71.02
81.69-85.68	Siltstone: medium to dark grey, fine grained, massive to thinly bedded at 80-90° to core axis; minor local crossbedding
85.68-86.87	Dolostone: medium grey, fine crystalline, massive, minor pin point porosity; predominately micritic with arenaceous horizons; minor pyrite bearing stylolites
86.87-88.36	Siltstone: as described at 81.69-85.68
88.36-88.88	Dolostone: medium grey, fine textured, massive, oolitic; oolites 0.5-1 mm, quartz sand centres, loosely to tightly packed, micritic matrix; minor pyrite along vertical stylolites
88.88-95.83	Siltstone: medium to dark grey, fine texture, massive to thinly laminated; minor fine sandstone and shaly horizons; bedding 80-90° to core axis, minor low angle crossbedding
95.83-96.16	Dolostone: dark grey, grey brown, fine crystalline, massive; comprised of elongate, 0.25-0.5 mm by 1.0-2.0 mm, sausage shaped bodies, possibly interclasts, in a sparry dolo-calcite matrix
96.16-104.27	Siltstone: medium to dark grey, fine textured, massive to thinly laminated; bedding 55-65° to core axis
104.27-104.67	Dolostone: medium grey, fine crystalline, massive arenaceous; very fine subrounded quartz sand grains in a fine, grey, micritic matrix; minor silty interbeds; bedding at 55-65° to core axis
104.67-129.60	Siltstone: as described at 96.16-104.27 numerous sandy beds and minor crossbedding; bedding steepens with depth to 45-50° to core axis
129.60-130.09	Dolostone: grey-buff, fine textured, micritic dolostone intermixed irregularly with patches of arenaceous dolostone and grey siltstone; sparry calcite common filling spaces between intermixed factions; pyrite and chalcopyrite locally common accompanying sparry calcite
130.09-130.27	Siltstone: dark grey, fine textured, massively bedded
130.27-131.43	Dolomitic limestone: medium grey, fine crystalline, massive, micritic, locally arenaceous and oolitic dolomitic limestone; abundant irregular stylolite development; numerous calcite lined vugs and fractures near base of unit; minor vague brachiopod outlines; lower content 35° to core axis; bedding irregular

Meguma Group

131.43-135.94	Slate: grey black to black, local hematite colouration along shear planes; strong cleavage at 0-10° to core axis, bedding probably coincident with cleavage; minor 1 cm quartz vein parallel to shearing
135.94	End of hole
	3 m of casing lost in overburden at bedrock

Drilling Performed by: Getty Mines Limited **Geologist:** R. Everett

APPENDIX 2.

DRILL LOGS FOR DIAMOND-DRILL HOLES MUR-90-1 TO MUR-90-18

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	40.98 m
Hole Number:	MUR-90-1	**Azimuth:**	
Latitude:	44°58'20.64"	**Dip:**	90°
	3° MTM 408463.00 m	**Started:**	July 16, 1990
Longitude:	63°11'8.88"	**Completed:**	July 19, 1990
	3° MTM 4982002.00 m	**Ultimate Depth:**	49.68 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-8.23	Mud, silt and clastic cobbles					
8.23-9.75	Gypsum, medium to dark grey, selenitic, intermixed fragments of carbonate and light grey gypsum	R-2001	8.23-9.75	93.08	3.23	0.008
9.75-10.67	Cavity					
10.67-13.08	Gypsum, light to medium grey, selenitic, common intermixed dark grey carbonate and clasts of fine grained gypsum	R-2002 R-2003	10.67-12.19 12.19-13.08	79.36 85.91	3.01 4.00	0.009 0.010
13.08-13.38	Dolostone, medium brownish grey, broken and replaced by white selenitic gypsum at base, possible 6 cm cavity at base					
13.38-14.54	Gypsum, light to medium grey, selenitic, minor to common wisps of carbonate, partially nodular in appearance	R-2004	13.38-14.54	89.73	3.71	0.012
14.54-14.69	Mudstone, dark greyish brown, poorly consolidated, calcareous, minor gypsum fragments					
14.69-18.79	Gypsum, white to light grey, variably selenitic, minor wisps of carbonate	R-2005 R-2006 R-2007	14.69-16.15 16.15-17.68 17.68-18.79	84.52 93.98 95.18	7.26 2.76 2.51	0.010 0.011 0.004
18.79-18.87	Mudstone, as above					
18.87-29.96	Gypsum, light grey to white, variably selenitic, minor wisps to vague laminae of dark grey carbonate, several minor <1 cm thick mud intervals	R-2008 R-2009 R-2010 R-2011 R-2012 R-2013 R-2014 R-2015	18.87-20.42 20.42-21.95 21.95-23.47 23.47-24.99 24.99-26.52 26.52-28.04 28.04-29.57 29.57-29.96	93.98 93.36 91.93 91.98 86.29 82.90 84.52 64.41	3.07 4.04 2.89 3.45 4.23 3.37 3.60 5.19	0.004 0.004 0.008 0.008 0.017 0.020 0.020 0.039
29.96-31.33	Breccia, medium grey, selenitic gypsum clasts in mudstone matrix, cut by satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
31.33-33.22	Gypsum, light to medium grey, selenitic, wisps to interlaminae of medium grey dolostone	R-2016	31.33-32.55	92.45	4.52	0.008
		R-2017	32.55-33.22	71.34	22.56	0.017
33.22-33.80	Dolostone, medium grey, medium- to coarse-grained, minor satin spar filled fractures					
33.80-44.01	Gypsum to anhydrite in mid unit, light to medium grey to blue grey where anhydritic, fine grained with abundant selenite minor borate nodules in mid unit	R-2018	33.80-35.05	79.89	1.93	0.008
		R-2019	35.05-36.58	86.00	8.06	0.009
		R-2020	36.58-38.10	82.04	14.55	0.020
		R-2021	38.10-39.62	58.63	38.26	0.137
		R-2022	39.62-41.15	88.63	6.22	0.025
		R-2023	41.15-42.67	83.33	7.35	0.014
		R-2024	42.67-44.01	86.20	4.80	0.014
44.01-46.79	Siltstone, medium grey, variably sandy, satin spar filled, fractures at top, dolostone interlaminae at base, rubbly at base					
46.79-49.68	Siltstone, red, minor light grey sandstone interlaminae at top and shaly laminae below					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	29.28 m
Hole Number:	MUR-90-2	**Azimuth:**	
Latitude:	44°58'11.96"	**Dip:**	90°
	3° MTM 407896.00 m	**Started:**	July 23, 1990
Longitude:	63°11'34.95"	**Completed:**	July 25, 1990
	3° MTM 4981725.00 m	**Ultimate Depth:**	62.79 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-11.58	Overburden, clay and silt					
11.58-12.44	Gypsum, light to medium grey, selenitic, medium to dark grey dolostone interlaminae common at base	R-2025	11.58-12.44	86.82	3.22	0.007
12.44-12.68	Mudstone, dark grey, calcareous, minor satin spar filled fractures					
12.68-12.95	Gypsum, light to medium grey, selenitic, minor dark grey dolostone interlaminae towards base	R-2026	12.68-12.95	90.45	3.06	0.011
12.95-13.26	Breccia, dark grey dolostone clasts infilled by white gypsum					
13.26-13.87	Gypsum, medium grey, selenitic common intermixed silt at base	R-2027	13.26-13.87	80.22	2.70	0.010
13.87-13.99	Mudstone, dark grey, calcareous					
13.99-15.15	Gypsum, light to medium grey, selenitic, minor wisps and laminae of dark grey limestone	R-2028	13.99-15.15	89.44	4.40	0.011
15.15-15.42	Mudstone, dark grey, dolomitic, minor satin spar filled fractures					
15.42-31.06	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor to common intermixed dark grey carbonate, vaguely laminated in part	R-2029	15.42-17.07	92.41	4.25	0.007
		R-2030	17.07-18.59	82.71	4.48	0.008
		R-2031	18.59-20.12	78.17	4.40	0.009
		R-2032	20.12-21.64	91.31	4.37	0.007
		R-2033	21.64-23.16	93.22	2.60	0.007
		R-2034	23.16-24.69	91.26	3.18	0.009
		R-2035	24.69-26.21	93.36	2.76	0.010
		R-2036	26.21-27.74	92.93	3.46	0.008
		R-2037	27.74-29.26	93.94	4.26	0.006
		R-2038	29.26-31.06	92.22	3.96	0.090
31.06-31.15	Limestone, medium to dark grey, fine grained, massive, vaguely laminated					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
31.15-38.65	Gypsum, light to medium grey, selenitic, common intermixed, dark grey carbonate	R-2039	31.15-32.31	90.73	4.59	0.010
		R-2040	32.31-33.83	90.54	5.57	0.009
		R-2041	33.83-35.36	89.78	5.07	0.009
		R-2042	35.36-36.88	86.82	6.05	0.009
		R-2043	36.88-38.65	79.84	5.69	0.017
38.65-39.65	Breccia, medium grey, gypsum clasts in a fine grained gypsum and mudstone matrix					
39.65-42.06	Gypsum, light to medium grey, selenitic, minor wisps of carbonate	R-2044	39.65-41.15	91.16	5.20	0.006
		R-2045	41.15-42.06	81.85	5.24	0.012
42.06-42.67	Limestone, medium to dark greyish brown, dolomitic, massive at top to laminated at base, minor satin spar filled fractures					
42.67-52.46	Gypsum to anhydrite at base, light to medium grey to blue grey where anhydrite, minor borate nodules	R-2046	42.67-44.50	89.11	5.36	0.007
		R-2047	44.50-46.02	87.53	6.83	0.005
		R-2048	46.02-47.55	90.88	4.47	0.006
		R-2049	47.55-49.07	90.73	4.96	0.011
		R-2050	49.07-50.50	68.33	26.05	0.084
		R-2051	50.60-52.46	25.23	64.80	0.061
52.46-52.73	Dolostone, medium to dark greyish brown, laminated, minor satin spar filled fractures					
52.73-54.10	Anhydrite, light to medium blue grey, minor, gypsum rosettes	R-2052	52.73-54.10	32.68	60.40	0.027
54.10-54.62	Dolostone, as above					
54.62-55.23	Sandstone, medium blue grey, silty, vague laminae 20° to core axis, satin spar filled fractures					
55.23-56.39	Dolostone, as above					
56.39-57.18	Gypsum, medium grey, dark grey dolostone fragments	R-2053	56.39-57.18	79.79	4.86	0.031
57.18-59.44	Siltstone, light brownish grey, sandy laminae 10-15° to core axis, minor satin spar filled fractures					
59.44	Siltstone, reddish brown, fine grained, vague laminae of light brown siltstone at top, massive below					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	42.49 m
Hole Number:	MUR-90-3	**Azimuth:**	
Latitude:	44°58'22.48"	**Dip:**	90°
	3° MTM 407793.00 m	**Started:**	July 26, 1990
Longitude:	63°11'39.41"	**Completed:**	July 31, 1990
	3° MTM 4982048.00 m	**Ultimate Depth:**	68.88 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-21.55	Overburden, silt, clay, minor cobbles					
21.55-46.76	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, common dark grey wisps and vague laminae of dolostone, mud seams at: 22.59-22.74, 23.16-23.32, 23.36-23.42, 23.68-23.76, 26.33-26.38, and 41.76-41.85 m; medium grey-brown dolostone interbed at 34.17-34.44 m; some carbonate is petroliferous	R-2054	21.55-23.16	91.36	2.87	0.006
		R-2055	23.16-24.69	93.36	2.91	0.007
		R-2056	24.69-26.21	91.64	2.10	0.005
		R-2057	26.21-27.74	73.68	4.70	0.009
		R-2058	27.74-29.26	79.27	4.62	0.007
		R-2059	29.26-30.78	88.68	5.58	0.009
		R-2060	30.78-32.31	88.20	5.71	0.008
		R-2061	32.31-33.83	95.03	2.73	0.009
		R-2062	33.83-35.36	88.15	7.75	0.010
		R-2063	35.36-36.88	94.84	2.42	0.006
		R-2064	36.88-38.40	95.42	2.99	0.008
		R-2065	38.40-39.93	86.00	1.66	0.011
		R-2066	39.93-41.45	95.46	2.51	0.004
		R-2067	41.45-42.98	92.22	3.01	0.007
		R-2068	42.98-44.50	91.74	4.91	0.011
		R-2069	44.50-46.02	86.91	4.31	0.016
		R-2070	46.02-46.76	84.09	4.30	0.27
46.76-48.04	Mudstone, medium grey-green, calcareous, gypsum clasts					
48.04-50.90	Gypsum, light to medium grey, minor wisps of medium to dark grey carbonate	R-2071	48.04-49.38	94.03	3.76	0.007
		R-2072	49.38-50.90	81.89	4.25	0.012
50.90-51.40	Limestone, medium to dark grey brown, vaguely laminated 25° to core axis					
51.40-61.26	Gypsum varies to anhydrite, light to medium grey to light to medium blue grey where anhydrite, vaguely laminated at top to massive below	R-2073	51.40-52.12	83.95	2.27	0.011
		R-2074	52.12-53.64	93.08	3.23	0.009
		R-2075	53.64-55.17	90.45	3.03	0.036
		R-2076	55.17-56.69	37.89	58.11	0.171
		R-2077	56.69-58.22	31.25	64.44	0.049
		R-2078	58.22-59.74	23.36	69.11	0.060
		R-2078A	59.74-61.26	17.25	70.25	0.098
61.26-63.25	Dolostone, dark grey brown, calcareous in part, massive, abundant satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
63.25-64.89	Gypsum, light grey, selenitic, common interlaminae of light grey siltstone at base	R-2079	63.25-64.89	65.89	6.72	0.083
64.89-68.34	Siltstone, light grey to reddish brown, sandy at top grades to shaly at base, satin spar filled fractures throughout					
68.34-68.88	Gypsum, light grey, as above	R-2080	68.34-68.88	75.35	6.73	0.019
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	31.48 m
Hole Number:	MUR-90-4	**Azimuth:**	
Latitude:	44°58'38.75"	**Dip:**	90°
	3° MTM 408208.00 m	**Started:**	August 1, 1990
Longitude:	63°11'20.10"	**Completed:**	August 2, 1990
	3° MTM 4982557.00 m	**Ultimate Depth:**	23.16 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-6.10	Overburden					
6.10-6.71	Dolostone, medium grey, massive, blocky, sandy in part					
6.71-12.85	Dolostone/siltstone, medium to dark grey, variably silty and muddy minor calcite filled fractures, sandy intervals					
12.85-15.94	Dolostone, dark grey to black, massive, abundant fossil debris with minor calcite and pyrite infilling					
15.94-17.01	Siltstone, medium to dark grey, massive, dolomitic in part					
17.01-23.16	Breccia, medium to dark grey, dolostone clasts in calcareous mudstone matrix					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy

Geologist: G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	35.89 m
Hole Number:	MUR-90-5	**Azimuth:**	146°
Latitude:	44°58'16.73"	**Dip:**	56°
	3° MTM 408509.00 m	**Started:**	August 7, 1990
Longitude:	63°11'6.87"	**Completed:**	August 8, 1990
	3° MTM 4981882.00 m	**Ultimate Depth:**	53.64 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-8.69	Overburden					
8.69-26.76	Gypsum, white to light grey, medium- to coarse-grained, selenitic, minor carbonate laminae 60° to core axis, small (15 cm) cavity at 13.1 m, mud seams at 14.63-14.69, 20.73-20.85 and 23.10-23.20 m	R-2081	8.69-10.06	85.29	6.18	0.006
		R-2082	10.06-11.89	77.93	14.35	0.005
		R-2083	11.89-13.41	92.93	3.03	0.008
		R-2084	13.41-14.94	91.16	2.89	0.005
		R-2085	14.94-16.46	93.89	2.62	0.005
		R-2086	16.46-18.14	95.18	3.67	0.005
		R-2087	18.14-19.81	94.89	4.46	0.004
		R-2088	19.81-21.18	88.63	3.63	0.006
		R-2089	21.18-22.86	90.21	5.89	0.004
		R-2090	22.86-24.38	88.58	4.21	0.007
		R-2091	24.38-25.91	88.39	6.61	0.005
		R-2092	25.91-26.76	86.82	5.73	0.008
26.76-27.43	Breccia, medium to dark grey, angular carbonate clasts in a calcareous mudstone matrix					
27.43-31.09	Gypsum, light grey to white, common wisps of dark grey carbonate, massive to nodular, selenitic	R-2093	27.43-29.26	80.84	3.59	0.010
		R-2094	29.26-31.09	80.99	3.71	0.018
31.09-32.10	Breccia, greenish grey, medium grey dolostone and limestone and light grey gypsum clasts in mudstone matrix					
32.10-34.72	Gypsum, light grey to white, fine- to coarse-grained	R-2095	32.10-33.83	92.55	4.53	0.006
		R-2096	33.83-34.72	80.94	3.90	0.009
34.72-35.23	Limestone, medium brown to yellowish brown with dark brown interbeds of dolostone, laminae 45° to core axis, muddy at base					
35.23-46.51	Gypsum, light grey to white to light blue-grey anhydrite, minor wisps of carbonate	R-2097	35.23-36.88	93.12	2.78	0.006
		R-2098	36.88-38.40	92.31	2.45	0.011
		R-2099	38.40-39.93	93.51	2.85	0.008
		R-2100	39.93-41.45	48.59	46.66	0.028
		R-2101	41.45-42.98	31.87	62.09	0.058
		R-2102	42.98-44.50	58.39	31.72	0.146
		R-2103	44.50-46.51	85.91	6.82	0.018

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
45.51-53.64	Interbedded and interlaminated, light grey sandstone and reddish-brown siltstone, laminae 45-60° to core axis					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy

Geologist: G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	31.61 m
Hole Number:	MUR-90-6	**Azimuth:**	
Latitude:	44°58'30.56"	**Dip:**	90°
	3° MTM 408378.00 m	**Started:**	August 9, 1990
Longitude:	63°11'12.53"	**Completed:**	August 13, 1990
	3° MTM 4982307.00 m	**Ultimate Depth:**	71.02 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-7.77	Overburden					
7.77-9.30	Gypsum, light grey to white, medium- to coarse-grained, selenitic	R-2104	7.77-9.30	94.65	3.07	0.002
9.30-10.97	Cavity					
10.97-11.13	Dolostone, dark green grey, medium- to coarse-grained, vaguely laminated, satin spar filled fractures 90° to core axis					
11.13-14.69	Gypsum, light grey to white, medium- to coarse-grained, selenitic, vaguely laminated with dark grey carbonate	R-2105	11.13-12.50	79.70	2.24	0.007
		R-2106	12.50-14.02	88.06	2.54	0.005
		R-2107	14.02-14.69	80.27	2.22	0.007
14.69-17.71	Dolostone, medium to dark greenish grey, grades to limestone in part, massive to brecciated with gypsum infilling					
17.71-18.35	Gypsum, light to medium grey, gypsum clasts in dark grey dolostone matrix	R-2108	17.71-18.35	70.24	1.75	0.006
18.35-19.20	Dolostone, as above					
19.20-50.51	Gypsum, light grey to light blue grey, fine- to coarse-grained, patches of dark greenish-grey dolostone down to 26.82 m, more massive below, mud seam 29.50-29.61 m	R-2109	19.20-20.12	88.92	1.40	0.003
		R-2110	20.12-21.64	80.32	1.20	0.005
		R-2111	21.64-23.16	79.70	1.84	0.004
		R-2112	23.16-24.69	82.75	2.60	0.006
		R-2113	24.69-26.21	81.99	1.32	0.006
		R-2114	26.21-27.74	87.49	2.23	0.008
		R-2115	27.74-29.26	89.49	2.24	0.002
		R-2116	29.26-30.78	63.26	1.64	0.013
		R-2117	30.78-32.31	87.01	2.67	0.006
		R-2118	32.31-33.83	92.41	3.36	0.003
		R-2119	33.83-35.36	92.07	3.75	0.005
		R-2120	35.36-36.88	95.56	2.96	0.003
		R-2121	36.88-38.40	95.03	2.51	0.003
		R-2122	38.40-39.93	94.56	2.58	0.009
		R-2123	39.93-41.45	96.28	2.39	0.007
		R-2124	41.45-42.98	82.80	2.40	0.010
		R-2125	42.98-44.50	92.69	3.75	0.078

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
		R-2126	44.50-46.02	90.54	2.07	0.021
		R-2127	46.02-47.55	91.59	2.07	0.063
		R-2128	47.55-49.07	89.73	2.83	0.016
		R-2129	49.07-50.51	77.36	2.39	0.035
50.51-51.39	Mudstone, medium greenish grey, white gypsum clasts at base					
51.39-53.64	Gypsum, light grey to white, minor wisps and interlaminae of carbonate	R-2130	51.39-52.12	82.37	2.60	0.022
		R-2131	52.12-53.64	90.26	2.86	0.005
53.64-54.16	Limestone, medium brownish grey, medium grained, massive at top to interlaminated with gypsum at base					
54.16-56.69	Gypsum, light grey to white, medium- to coarse-grained, selenitic	R-2132	54.16-55.17	90.83	3.03	0.006
		R-2133	55.17-56.69	93.79	2.74	0.007
56.69-57.18	Intermixed white gypsum blocks and satin spar filled fractures in a medium grey, calcareous mudstone matrix	R-2134	56.69-57.18	41.43	9.91	0.074
57.18-64.65	Gypsum, light to medium grey grades to light blue-grey anhydrite, medium- to coarse-grained, selenitic at top to fine grained massive below, minor wisps of carbonate	R-2135	57.18-58.22	93.03	3.28	0.012
		R-2136	58.22-59.74	40.28	56.20	0.041
		R-2137	59.74-61.26	8.07	84.09	0.057
		R-2138	61.26-62.79	11.66	34.17	0.050
		R-2139	62.79-64.65	18.30	64.93	0.070
64.65-65.04	Siltstone, medium to dark grey, vaguely laminated 85° to core axis, common satin spar filled fractures, partly calcareous					
65.04-65.78	Sandstone, medium grey, medium- to coarse-grained, minor satin spar filled fractures, few silty laminae					
65.78-66.14	Siltstone, as above					
66.14-66.35	Sandstone, as above					
66.35-67.21	Siltstone, as above					
67.21-68.55	Anhydrite, blue grey to light grey, minor selenite, sandy at base	R-2140	67.21-68.55	32.30	42.66	0.110
68.55-70.41	Sandstone, light grey, reddish-brown siltstone interlaminae 80-85° to core axis					
70.41-71.02	Siltstone, reddish brown, sandy interlaminae 75-85° to core axis					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	25.38 m
Hole Number:	MUR-90-7	**Azimuth:**	
Latitude:	44°58'57.33"	**Dip:**	90°
	3° MTM 408345.00 m	**Started:**	August 14, 1990
Longitude:	63°11'13.43"	**Completed:**	August 21, 1990
	3° MTM 4983133.00 m	**Ultimate Depth:**	87.17 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-8.23	Overburden					
8.23-9.45	Large blocks of light grey gypsum and medium grey dolostone					
9.45-9.97	Dolostone, medium to dark grey, medium grained, minor satin spar filled fractures 90° to core axis, minor calcite filled voids					
9.97-11.58	Gypsum, brownish grey, very fine grained, minor dolostone laminae 80-85° to core axis	R-2141	9.97-11.58	76.21	5.27	0.007
11.58-12.28	Dolostone, dark brownish grey, common satin spar filled fractures 90° to core axis					
12.28-12.95	Gypsum, light brown to light grey, fine- to medium-grained, selenitic in part	R-2142	12.28-12.95	88.35	4.54	0.007
12.95-13.11	Dolostone, as above					
13.11-14.02	Gypsum, light brown to light grey, fine- to medium-grained, minor selenite, minor wisps of dolostone	R-2143	13.11-14.02	69.09	7.79	0.007
14.02-14.31	Dolostone, as above					
14.31-15.54	Gypsum, as above	R-2144	14.31-15.54	88.49	5.90	0.007
15.54-16.34	Dolostone, as above					
16.34-19.14	Gypsum, light brown, fine grained at top to medium- to coarse-grained below, common dolostone inter-laminae 80-85° to core axis, minor borate nodules	R-2145 R-2146	16.34-17.68 17.68-19.14	83.66 87.82	4.61 4.10	0.011 0.009
19.14-19.32	Dolostone, as above					
19.32-21.24	Gypsum, as above	R-2147	19.32-21.24	88.39	2.78	0.011
21.24-22.25	Dolostone, medium grey, fine grained, massive minor satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
22.25-27.07	Gypsum, light grey, medium- to coarse-grained, fine grained, light blue-grey anhydrite in mid unit, minor wisps of dolostone	R-2148	22.25-23.77	92.79	4.00	0.077
		R-2149	23.77-25.30	34.97	56.45	0.237
		R-2150	25.30-27.07	73.92	7.03	0.063
27.07-27.83	Dolostone, medium grey, fine grained, massive with light grey, coarse grained gypsum interbeds 50-55° to core axis					
27.83-31.39	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor wisps of carbonate	R-2151	27.83-29.41	88.20	5.72	0.016
		R-2152	29.41-31.39	87.29	5.51	0.013
31.39-31.82	Dolostone, medium grey, fine- to medium-grained, gypsum at base					
31.82-34.44	Gypsum, light to medium grey, medium- to coarse-grained, common wisps and patches of dolostone	R-2153	31.82-33.22	72.34	3.62	0.022
		R-2154	33.22-34.44	83.52	2.56	0.011
34.44-35.51	Dolostone, medium grey, fine- to medium-grained, massive, common satin spar filled fractures					
35.51-43.34	Gypsum, light to medium grey, medium- to coarse-grained, selenitic	R-2155	35.51-36.88	94.41	2.95	0.009
		R-2156	36.88-38.40	90.16	3.34	0.010
		R-2157	38.40-39.93	87.58	3.36	0.010
		R-2158	39.93-41.45	67.47	11.27	0.015
		R-2159	41.45-43.34	91.45	3.42	0.009
43.34-43.80	Dolostone, medium grey, fine- to medium-grained, minor satin spar filled fractures					
43.80-63.15	Gypsum, light to medium grey, medium- to coarse-grained for upper 7 m, medium- to coarse-grained, light blue-grey anhydrite below, gypsum at base, minor wisps of dolostone throughout, petroliferous in part	R-2160	43.80-44.50	85.86	2.75	0.013
		R-2161	44.50-46.02	89.68	5.93	0.042
		R-2162	46.02-47.55	73.49	10.14	0.013
		R-2163	47.55-49.07	74.39	11.19	0.129
		R-2164	49.07-50.60	7.93	88.18	0.115
		R-2165	50.60-52.12	11.28	84.00	0.131
		R-2166	52.12-53.64	9.94	82.60	0.108
		R-2167	53.64-55.17	3.87	95.02	0.028
		R-2168	55.17-56.69	38.75	52.48	0.112
		R-2169	56.69-58.22	9.99	87.40	0.077
		R-2170	58.22-59.74	48.02	48.95	0.110
		R-2171	59.74-61.26	85.48	4.46	0.013
		R-2172	61.26-63.15	89.01	3.21	0.013
63.15-63.67	Mudstone, grey green, common satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
63.67-73.82	Gypsum, anhydrite, light to medium grey to light blue grey, minor wisps of dolostone, minor selenite	R-2173	63.67-64.31	93.12	4.52	0.009
		R-2174	64.31-65.84	56.09	27.55	0.126
		R-2175	65.84-67.36	33.21	58.07	0.022
		R-2176	67.36-68.88	10.08	87.11	0.093
		R-2177	68.88-70.41	8.55	87.82	0.042
		R-2178	70.41-71.93	7.60	78.51	0.046
		R-2179	71.93-73.46	23.84	58.00	0.099
		R-2180	73.46-73.82	18.49	69.79	0.064
73.82-75.93	Dolostone, medium to dark grey green, fine- to medium-grained, massive, sandy in mid unit, minor satin spar filled fractures					
75.93-77.42	Anhydrite, light blue grey, minor wisps of dolostone	R-2181	75.93-77.42	19.26	59.41	0.108
77.42-77.72	Dolostone, light brown, coarse grained, abundant intermixed light blue-grey anhydrite					
77.72-79.55	Dolostone, light brownish grey, coarse grained, minor dark grey dolostone interlaminae 75-85° to core axis, silty laminae at base					
79.55-80.86	Siltstone, reddish brown, sandy interlaminae, minor satin spar filled fractures					
80.86-84.03	Gypsum, light to medium grey, medium- to coarse-grained, minor wisps of light brown dolostone	R-2182	80.86-82.30	73.92	5.01	0.025
		R-2183	82.30-84.03	64.65	2.57	0.015
84.03-85.16	Dolostone, light brown, coarse grained, minor calcite filled fractures, dark grey dolostone interlaminae 75-80° to core axis					
85.16-86.20	Siltstone, reddish brown, interlaminae of coarse grained dolostone					
86.20-86.38	Dolostone, light brown, coarse grained, interlaminae of red siltstone					
86.38-86.69	Gypsum, light grey, medium- to coarse-grained					
86.89-87.17	Dolostone, light brown, coarse grained, interlaminae of red siltstone					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy

Geologist: G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	46.81 m
Hole Number:	MUR-90-8	**Azimuth:**	
Latitude:	44°58'33.63"	**Dip:**	90°
	3° MTM 408949.00 m	**Started:**	August 22, 1990
Longitude:	63°10'46.40"	**Completed:**	August 23, 1990
	3° MTM 4982411.00 m	**Ultimate Depth:**	65.53 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-9.45	Overburden					
9.45-11.19	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor wisps of dolostone	R-2184	9.45-11.19	79.70	5.45	0.006
11.19-11.70	Breccia, light grey gypsum clasts in green-grey mudstone matrix					
11.70-22.77	Gypsum, light to medium blue grey, minor wisps to interlaminae of medium grey dolostone	R-2185	11.70-13.11	89.83	6.09	0.004
		R-2186	13.11-14.63	89.25	4.91	0.004
		R-2187	14.63-16.15	86.10	4.05	0.008
		R-2188	16.15-17.68	88.82	3.34	0.006
		R-2189	17.68-19.20	93.55	3.85	0.004
		R-2190	19.20-20.73	91.69	3.39	0.013
		R-2191	20.73-22.77	90.45	4.88	0.004
22.77-23.04	Dolostone, dark greenish grey, muddy, common gypsum clasts					
23.04-31.46	Gypsum, light to medium blue grey, medium- to coarse-grained, selenite	R-2192	23.04-24.38	93.17	4.66	0.003
		R-2193	24.38-25.91	14.33	81.26	0.067
		R-2194	25.91-27.43	92.65	5.86	0.005
		R-2195	27.43-28.96	85.72	5.65	0.005
		R-2196	28.96-30.48	92.74	5.57	0.006
		R-2197	30.48-31.46	89.92	5.09	0.006
31.46-31.76	Limestone, medium greenish grey, fine grained, muddy, minor clasts of gypsum					
31.76-36.42	Gypsum, light blue grey, medium- to coarse-grained, as above	R-2198	31.76-33.53	92.69	4.53	0.003
		R-2199	33.53-35.05	83.71	5.74	0.007
		R-2200	35.05-36.42	93.31	2.71	0.005
36.42-37.37	Breccia, medium greenish grey, abundant gypsum clasts in a muddy limestone matrix	R-2201	36.42-37.37	61.49	1.19	0.023
37.37-39.68	Gypsum, light blue grey, medium- to coarse-grained, selenitic, minor wisps of light greenish-grey dolostone	R-2202	37.37-38.40	95.70	2.25	0.003
		R-2203	38.40-39.68	81.56	2.21	0.004

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
39.68-40.39	Limestone, light brownish grey, fine to medium grey, massive, minor intermixed light grey gypsum					
40.39-52.61	Gypsum, light blue grey, medium- to very coarse-grained, selenitic, minor calcareous mud seams at 41.15-41.18, 41.51-41.57, 41.73-41.82 m, minor borate nodules in mid unit, minor wisps of dolostone	R-2204	40.39-41.76	89.11	2.40	0.007
		R-2205	41.76-43.28	95.37	2.74	0.006
		R-2206	43.28-44.81	93.94	3.33	0.010
		R-2207	44.81-46.33	93.17	3.81	0.007
		R-2208	46.33-47.85	93.22	0.97	0.011
		R-2209	47.85-49.38	90.83	2.86	0.007
		R-2210	49.38-50.90	82.18	2.80	0.012
		R-2211	50.90-52.61	92.74	2.40	0.007
52.61-53.40	Siltstone, dark grey, shaly, vague laminae 65° to core axis, common satin spar filled fractures 90° to core axis					
53.40-54.86	Dolostone, medium greenish grey, coarse grained, laminae 75-80° to core axis, minor satin spar filled fractures					
54.86-56.54	Siltstone, dark grey, shaly, vaguely laminated 70-80° to core axis, common satin spar filled fractures					
56.54-59.16	Dolostone, light brownish grey, common intermixed gypsum in top of unit, common satin spar filled fractures throughout, grades to siltstone at base					
59.16-60.84	Siltstone, reddish brown, vague dolostone laminae 80-85° to core axis, minor satin spar filled fractures 80° to core axis					
60.84-62.48	Gypsum, light to medium grey, medium- to coarse-grained, minor to common intermixed reddish-brown siltstone	R-2212	60.84-62.48	70.81	2.09	0.006
62.48-63.79	Dolostone, light brown, medium- to coarse-grained, interlaminae of reddish-brown siltstone, 70-80° to core axis					
63.79-65.53	Siltstone, reddish brown, interlaminae of light brown dolostone 80-85° to core axis					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	67.79 m
Hole Number:	MUR-90-9	**Azimuth:**	
Latitude:	44°58'24.09"	**Dip:**	90°
	3° MTM 409111.00 m	**Started:**	August 24, 1990
Longitude:	63°10'39.22"	**Completed:**	August 27, 1990
	3° MTM 4982119.00 m	**Ultimate Depth:**	28.35 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-19.20	Overburden					
19.20-28.35	Cavity, lost circulation					
	Abandoned hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	66.85 m
Hole Number:	MUR-90-10	**Azimuth:**	
Latitude:	44°58'25.77"	**Dip:**	90°
	3° MTM 409058.00 m	**Started:**	August 28, 1990
Longitude:	63°10'41.60"	**Completed:**	August 28, 1990
	3° MTM 4982170.00 m	**Ultimate Depth:**	22.25 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-22.25	Overburden, cavity at bottom, lost circulation					
	Abandoned hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	65.79 m
Hole Number:	MUR-90-11	**Azimuth:**	
Latitude:	44°58'26.76"	**Dip:**	90°
	3° MTM 408952.00 m	**Started:**	August 29, 1990
Longitude:	63°10'46.42"	**Completed:**	August 29, 1990
	3° MTM 4982199.00 m	**Ultimate Depth:**	28.96 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-28.96	Overburden, cavity at bottom, lost circulation					
	Abandoned hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	29.89 m
Hole Number:	MUR-90-12	**Azimuth:**	
Latitude:	44°58'43.29"	**Dip:**	90°
	3° MTM 408632.00 m	**Started:**	August 30, 1990
Longitude:	63°11'0.65"	**Completed:**	September 6, 1990
	3° MTM 4982704.00 m	**Ultimate Depth:**	102.11 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-5.49	Overburden					
5.49-10.06	Dolostone, dark blue grey, brecciated in part, muddy interlaminae 75-80° to core axis					
10.06-21.34	Cavity, mud filled, only recovery few cm of dark grey gypsum					
21.34-27.28	Gypsum, light blue grey, medium- to coarse-grained, selenitic, minor dark grey dolostone interlaminae 80-85° to core axis more abundant in lower half of unit, dolostone is petroliferous, minor borate nodules	R-2213 R-2214 R-2215 R-2216	21.34-22.86 22.86-24.38 24.38-25.91 25.91-27.28	92.69 93.03 83.85 84.09	3.90 4.39 3.15 3.21	0.009 0.007 0.009 0.010
27.28-28.16	Interbedded gypsum, as above, and dark grey, medium- to coarse-grained dolostone, massive, common satin spar filled fractures, dolostone is petroliferous	R-2217	27.28-28.16	56.95	1.92	0.017
28.16-28.80	Dolostone, dark grey, fine- to medium-grained, massive, muddy in part, petroliferous, abundant satin spar filled fractures					
28.80-30.24	Gypsum, light blue grey, medium- to coarse-grained, selenitic, common dark grey dolostone interlaminae 75-80° to core axis	R-2218	28.80-30.24	84.57	2.88	0.013
30.24-31.58	Dolostone, dark grey, fine- to medium-grained, massive, cut by numerous satin spar filled fractures, small gypsum interbed in mud unit					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
31.58-32.43	Gypsum, light blue grey, medium- to coarse-grained, minor wisps of dolostone increasing towards base of unit	R-2219	31.58-32.43	91.69	2.27	0.009
32.43-32.74	Dolostone, as above					
32.74-33.36	Gypsum, as above	R-2220	32.74-33.36	82.90	2.90	0.014
33.36-33.74	Dolostone, as above					
33.74-35.14	Gypsum, light to medium blue grey, medium- to coarse-grained, common wisps and interlaminae of dolostone	R-2221	33.74-35.14	87.44	2.89	0.015
35.14-35.75	Siltstone, dark greyish brown, fine grained, massive, dolomitic, shaly at top, minor satin spar filled fractures					
35.75-40.11	Gypsum, light to medium blue grey, medium- to coarse-grained, variable intermixed dark grey siltstone and dolostone most abundant 38.44-38.71 m	R-2222 R-2223 R-2224	35.75-37.19 37.19-38.71 38.71-40.11	92.22 79.55 77.98	2.58 3.08 4.02	0.008 0.013 0.014
40.11-41.85	Dolostone, dark greyish brown, medium- to coarse-grained, vague laminae at top and base of unit 75-80° to core axis, abundant green intermixed in mid unit					
41.85-46.42	Gypsum, light to medium blue grey, fine- to coarse-grained, coarse at top and base of unit, borate nodules in fine grained middle part of unit	R-2225 R-2226 R-2227	41.85-43.28 43.28-44.81 44.81-46.42	93.31 94.03 95.03	4.67 4.83 3.17	0.012 0.011 0.011
46.42-47.37	Dolostone, dark greyish brown, fine- to medium-grained, common intermixed light blue-grey gypsum and satin spar filled fractures					
47.37-50.57	Gypsum, light to medium grey, medium- to coarse-grained, minor wisps and interlaminae of dark grey dolostone, laminae 85° to core axis	R-2228 R-2229	47.37-48.92 48.92-50.57	79.22 84.38	2.12 3.00	0.018 0.013

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
50.57-52.15	Dolostone, dark grey brown, fine- to medium-grained, massive, common intermixed gypsum, minor gypsum interlaminae					
52.15-52.49	Gypsum, as above	R-2230	52.15-52.49	89.92	2.85	0.009
52.49-54.07	Dolostone, as above					
54.07-55.63	Gypsum, as above	R-2231	54.07-55.63	93.12	2.41	0.004
55.63-55.78	Mud, dark grey, calcareous, blocks of gypsum in top of unit					
55.78-58.43	Gypsum, light grey to light blue grey, fine- to coarse-grained, selenitic in part, minor wisps of carbonate	R-2232	55.78-57.00	89.83	1.99	0.010
		R-2233	57.00-58.43	84.76	1.47	0.006
58.43-60.72	Breccia, medium to dark grey, calcareous, mudstone matrix with light grey gypsum and greyish-brown dolostone clasts					
60.72-75.36	Gypsum, light grey to light blue grey, medium- to coarse-grained, muddy dolostone patches at 61.07-61.11, 61.36-61.57, 63.86-64.31 and 69.10-69.17 m, massive to nodular where dolostone more abundant	R-2234	60.72-62.18	86.82	2.35	0.012
		R-2235	62.18-63.70	90.78	2.80	0.002
		R-2236	63.70-65.23	68.52	1.95	0.009
		R-2237	65.23-66.75	92.12	2.10	0.002
		R-2238	66.75-68.28	90.07	2.79	0.003
		R-2239	68.28-69.80	88.87	2.61	0.005
		R-2240	69.80-71.32	95.46	2.73	0.010
		R-2241	71.32-72.85	96.66	2.12	0.003
		R-2242	72.85-74.37	86.43	2.80	0.007
		R-2243	74.37-75.36	93.41	3.40	0.006
75.36-75.56	Mudstone, medium to dark grey, calcareous, minor selenite					
75.56-80.60	Gypsum, light grey to light blue grey, fine- to coarse-grained, minor to common wisps of dark greyish-brown, muddy dolostone to limestone	R-2244	75.56-76.81	91.46	3.29	0.009
		R-2245	76.81-78.33	94.22	3.73	0.004
		R-2246	78.33-79.86	91.69	3.54	0.007
		R-2247	79.86-80.60	84.62	9.17	0.013
80.60-80.80	Limestone, medium greyish brown, medium- to coarse-grained, apparent algal mats					
80.80-82.42	Gypsum, light blue grey, medium- to coarse-grained	R-2248	80.80-82.42	92.65	3.41	0.006
82.42-83.03	Mudstone, medium greyish green, slightly calcareous					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
83.03-86.26	Gypsum, light grey to light blue grey, medium- to coarse-grained, selenitic, minor to common wisps of light brown limestone increasing towards base of unit	R-2249	83.03-84.73	95.46	3.41	0.008
		R-2250	84.73-86.26	84.05	2.91	0.009
86.26-86.53	Limestone, light brown, moderately calcareous, laminated 75-80° to core axis, common intermixed gypsum on top of unit					
86.53-97.20	Gypsum/anhydrite, light grey to light blue grey, gypsum is coarse grained, anhydrite is fine grained and massive, selenite throughout, mudstone interbeds at 87.72-87.77 m	R-2251	86.53-88.09	93.12	3.43	0.006
		R-2252	88.09-89.61	95.70	2.78	0.010
		R-2253	89.61-91.14	28.48	68.98	0.049
		R-2254	91.14-92.66	20.26	75.46	0.043
		R-2255	92.66-94.18	29.48	69.54	0.038
		R-2256	94.18-95.71	13.38	76.93	0.067
		R-2257	95.71-97.20	25.56	68.58	0.052
97.20-97.60	Dolostone, medium brownish grey to dark grey, minor dark shale, patches of gypsum and minor satin spar filled fractures					
97.60-98.33	Sandstone, light grey to light greenish grey, fine grained, few shaly interlaminae 85° to core axis, minor satin spar filled fractures					
98.33-98.69	Shale, medium to dark grey, massive at top to laminated below with sandstone and dolostone interlaminae					
98.69-99.06	Sandstone, as above					
99.06-100.00	Shale, as above					
100.00-101.61	Gypsum, light grey, medium- to coarse-grained, common intermixed light brown limestone, minor reddish-brown siltstone interbeds	R-2258	100.00-101.61	79.55	2.37	0.054
101.61-102.11	Siltstone, reddish brown, variably sandy, minor satin spar filled fractures					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	43.76 m
Hole Number:	MUR-90-13	**Azimuth:**	
Latitude:	44°58'40.75"	**Dip:**	90°
	3° MTM 409274.00 m	**Started:**	September 7, 1990
Longitude:	63°10'31.40"	**Completed:**	September 10, 1990
	3° MTM 4982636.00 m	**Ultimate Depth:**	47.24 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-8.44	Overburden					
8.44-26.53	Gypsum, light grey to light blue grey, medium- to coarse-grained, minor patches of fine grained light brown limestone, minor interlaminae of dark grey dolostone 75-80° to core axis, dolostone petroliferous in part	R-2259	8.44-9.75	96.28	2.67	0.006
		R-2260	9.75-11.28	88.68	2.71	0.007
		R-2261	11.28-12.80	89.83	1.10	0.006
		R-2262	12.80-14.33	93.79	2.17	0.006
		R-2263	14.33-15.85	89.78	2.33	0.009
		R-2264	15.85-17.37	93.89	3.08	0.003
		R-2265	17.37-18.90	95.27	3.41	0.006
		R-2266	18.90-20.42	96.85	2.26	0.004
		R-2267	20.42-21.95	87.01	3.18	0.010
		R-2268	21.95-23.47	93.03	2.84	0.011
		R-2269	23.47-24.99	93.84	2.94	0.003
		R-2270	24.99-26.53	92.22	2.05	0.010
26.53-26.79	Limestone, light greyish brown, medium- to coarse-grained, vaguely laminated					
26.79-27.80	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor intermixed dark grey dolostone	R-2271	26.79-27.80	88.78	2.06	0.008
27.80-28.86	Mudstone, dark grey, 0.76 m missing, cavity					
28.86-40.39	Gypsum, light to medium grey, fine- to coarse-grained, common wisps and interlaminae of dark grey muddy dolostone, minor borate nodules	R-2272	28.86-30.18	72.96	2.26	0.010
		R-2273	30.18-31.70	88.63	1.74	0.010
		R-2274	31.70-33.22	94.94	2.82	0.010
		R-2275	33.22-34.75	92.98	3.76	0.012
		R-2276	34.75-36.27	58.86	37.21	0.144
		R-2277	36.27-37.80	87.87	4.19	0.022
		R-2278	37.80-39.32	82.90	3.41	0.020
		R-2279	39.32-40.39	90.59	3.07	0.015
40.49-41.15	Siltstone, medium to dark grey, shaly dolostone laminae 85° to core axis, common satin spar filled fractures					
41.15-42.06	Sandstone, light greyish green, fine grained, slightly calcareous, minor satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
42.06-42.31	Shale, dark grey to black, massive at top to sandy at base of unit					
42.31-42.87	Sandstone, as above					
42.87-43.95	Shale, as above					
43.95-44.35	Gypsum, light grey, medium- to coarse-grained, minor patches of light brown dolostone, not sampled					
44.35-47.24	Interbedded and interlaminated light brown calcareous sandstone and reddish-brown siltstone, minor gypsum interbeds and satin spar filled fractures					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	33.41 m
Hole Number:	MUR-90-14	**Azimuth:**	
Latitude:	44°59'.05"	**Dip:**	90°
	3° MTM 408718.00 m	**Started:**	September 11, 1990
Longitude:	63°10'56.34"	**Completed:**	September 13, 1990
	3° MTM 4983223.00 m	**Ultimate Depth:**	93.27 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-10.79	Overburden					
10.79-15.97	Gypsum, light to medium grey, fine- to coarse-grained, fine grained at top with minor wisps of dark grey siltstone, medium- to coarse-grained below with dark grey silty dolostone interlaminae 80-85° to core axis	R-2280	10.79-12.19	94.56	3.36	0.006
		R-2281	12.19-13.72	94.51	2.93	0.005
		R-2282	13.72-15.24	70.48	1.78	0.003
		R-2283	15.24-15.97	81.75	1.92	0.005
15.97-17.34	Interbedded dark grey dolomitic siltstone and light grey gypsum, beds 75-80° to core axis, minor satin spar filled fractures					
17.34-18.88	Gypsum, light to medium grey, medium- to coarse-grained, minor silty laminae 75-85° to core axis	R-2284	17.34-18.88	83.66	1.77	0.008
18.88-19.63	Siltstone, dark greenish grey, dolomitic, gypsum interbed in mid unit, vague laminae 75-80° to core axis					
19.63-22.89	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor wisps and patches of dark grey siltstone and dolostone	R-2285	19.63-21.34	85.96	0.84	0.010
		R-2286	21.34-22.89	73.53	1.62	0.004
22.89-23.67	Siltstone, dark greenish grey, dolomitic, minor satin spar filled fractures					
23.67-26.73	Gypsum, light to medium grey, medium- to coarse-grained, selenitic in part, minor siltstone interbeds and interlaminae	R-2287	23.67-24.99	86.43	2.14	0.005
		R-2288	24.99-26.73	76.35	3.35	0.007
26.73-27.13	Dolostone, medium to dark grey, fine grained, massive, minor satin spar filled fractures					
27.13-28.79	Gypsum, light to medium grey, minor interlaminae of dark grey siltstone	R-2289	27.13-28.79	93.74	1.97	0.006

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
28.79-30.11	Dolostone, medium to dark grey, fine grained, massive, abundant satin spar filled fractures, 25% gypsum patches					
30.11-35.02	Gypsum, light grey to light blue grey, fine- to coarse-grained, minor borate nodules	R-2290	30.11-31.70	94.03	0.45	0.035
		R-2291	31.70-33.22	95.85	2.43	0.010
		R-2292	33.22-35.02	96.18	1.89	0.008
35.02-35.30	Dolostone, medium to dark brownish grey, vague laminae at base 85° to core axis, minor satin spar filled fractures					
35.30-38.71	Gypsum, light to medium grey, fine- to coarse-grained, minor to common interlaminae and interbeds of medium to dark greyish-brown dolostone, selenitic in part	R-2293	35.30-37.03	95.50	2.22	0.018
		R-2294	37.03-38.71	83.95	2.12	0.018
38.71-39.38	Dolostone, as above, with patches of gypsum					
39.38-41.13	Gypsum, light grey, medium- to coarse-grained, patches and interbeds of dark grey dolostone	R-2295	39.38-41.13	77.74	2.14	0.019
41.13-41.33	Mudstone, dark greyish brown, dolomitic					
41.33-41.86	Gypsum, as above	R-2296	41.33-41.86	77.31	1.81	0.017
41.86-42.21	Mudstone, as above					
42.21-49.38	Gypsum, light grey to light blue grey, fine- to coarse-grained, selenitic in part, patches of silty dolostone at 43.80-43.86, 44.81-45.02, 46.21-46.25, 46.60-46.82, 47.03-47.27 m	R-2297	42.21-43.59	93.08	1.61	0.009
		R-2298	43.59-45.11	82.42	0.37	0.009
		R-2299	45.11-46.63	88.68	0.84	0.007
		R-2300	46.63-48.16	72.96	0.92	0.016
		R-2301	48.16-49.38	83.09	0.64	0.011
49.38-50.23	Breccia, dark grey, dolomitic mudstone matrix with gypsum, siltstone and dolostone clasts					
50.23-63.79	Gypsum, light grey to light blue grey	R-2302	50.23-51.82	96.13	2.29	0.005
		R-2303	51.82-53.34	89.59	2.06	0.010
		R-2304	53.34-54.86	84.91	2.08	0.010
		R-2305	54.86-56.39	85.72	2.74	0.011
		R-2306	56.39-57.91	93.51	3.43	0.013
		R-2307	57.91-59.44	91.93	3.33	0.014
		R-2308	59.44-60.96	92.50	2.30	0.012
		R-2309	60.96-62.48	86.96	1.35	0.021
		R-2310	62.48-63.79	82.23	0.78	0.016

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
63.79-64.31	Limestone, light brown, fine grained, vague contorted inter-laminae					
64.31-72.33	Gypsum, light grey to light blue grey, fine- to coarse-grained, small interbeds of dolostone and limestone in bottom half of unit	R-2311	64.31-65.84	93.22	1.75	0.007
		R-2312	65.84-67.36	71.91	24.74	0.023
		R-2313	67.36-68.88	83.42	12.45	0.031
		R-2314	68.88-70.41	85.57	2.43	0.008
		R-2315	70.41-71.93	84.52	2.11	0.012
		R-2316	71.93-72.33	95.42	2.36	0.006
72.33-73.00	Breccia, mudstone matrix, dolostone clasts					
73.00-75.74	Gypsum, anhydritic, light grey to light blue grey, fine- to medium-grained, selenite rosettes	R-2317	73.00-74.37	58.15	39.78	0.015
		R-2318	74.37-74.74	73.20	1.82	0.013
75.74-76.57	Dolostone, light to medium greyish brown, contorted laminae, minor interlaminae and interbeds of gypsum					
76.57-85.86	Anhydrite, light blue grey, gypsiferous in part, fine- to medium-grained, minor selenite, silty laminae at base of unit	R-2319	76.57-78.03	26.95	69.92	0.022
		R-2320	78.03-79.55	71.91	22.04	0.037
		R-2321	79.55-81.08	5.94	90.91	0.044
		R-2322	81.08-82.60	12.47	83.65	0.056
		R-2323	82.60-84.12	2.10	93.08	0.042
		R-2324	84.12-85.86	11.18	80.90	0.045
85.86-86.38	Siltstone, dark grey, shaly, numerous satin spar filled fractures					
86.38-86.75	Siltstone, medium greyish green, sandy					
86.75-88.85	Siltstone, dark grey, sandy in part, satin spar filled fractures					
88.85-89.25	Anhydrite, light blue grey, fine grained, minor selenite, no sample					
89.25-89.55	Shale, dark grey, numerous satin spar filled fractures					
89.55-93.27	Interbedded and interlaminated reddish-brown siltstone and light brown dolostone, common satin spar filled fractures					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	36.28 m
Hole Number:	MUR-90-15	**Azimuth:**	
Latitude:	44°59'8.98"	**Dip:**	90°
	3° MTM 409052.00 m	**Started:**	September 17, 1990
Longitude:	63°10'40.89"	**Completed:**	September 19, 1990
	3° MTM 4983504 m	**Ultimate Depth:**	77.11 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-12.19	Overburden					
12.19-16.98	Gypsum, light to medium grey, medium- to coarse-grained, minor intermixed dark grey siltstone and dolostone	R-2325	12.19-13.72	79.60	2.79	0.008
		R-2326	13.72-15.24	96.09	2.60	0.005
		R-2327	15.24-16.98	91.26	2.59	0.008
16.98-17.62	Dolostone, medium to dark grey, massive, shaly, minor satin spar filled fractures					
17.62-22.04	Gypsum, light to medium blue grey, medium- to coarse-grained, minor wisps and patches of dark grey siltstone and dolostone, minor satin spar filled fractures	R-2328	17.62-18.90	85.77	1.53	0.008
		R-2329	18.90-20.42	92.26	1.00	0.010
		R-2330	20.42-22.04	92.93	1.47	0.006
22.04-22.43	Dolostone, medium to dark greyish brown, muddy at top of unit, patches of light blue gypsum					
22.43-24.63	Gypsum, light blue grey, medium- to coarse-grained, interbeds of dark grey muddy dolostone, common satin spar filled fractures	R-2331	22.43-23.47	61.02	1.02	0.034
		R-2332	23.47-24.63	81.94	0.30	0.023
24.63-25.73	Dolostone, medium to dark greyish brown, muddy at top and base of unit, interbeds of blue-grey gypsum, minor satin spar filled fractures					
25.73-34.08	Gypsum, light grey to light blue grey, medium- to coarse-grained muddy dolostone patches at 27.43-27.55, 28.71-29.05 and 30.78-31.85 m, dolostone is often petroliferous	R-2333	25.73-27.13	93.17	1.74	0.009
		R-2334	27.13-28.65	87.10	1.10	0.012
		R-2335	28.65-30.18	89.21	1.83	0.011
		R-2336	30.18-31.70	75.64	0.55	0.030
		R-2337	31.70-33.22	89.83	2.09	0.017
		R-2338	33.22-34.08	93.03	1.82	0.015
34.08-34.47	Mudstone, dark grey, dolomitic, minor satin spar filled fractures					
34.47-39.14	Gypsum, light grey to light blue grey, fine- to medium-grained, minor anhydrite, minor borate nodules	R-2339	34.47-35.97	80.17	18.50	0.057
		R-2340	35.97-37.49	90.88	1.82	0.009
		R-2341	37.49-39.14	85.24	2.86	0.007

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
39.14-39.41	Gypsum, light brown, very fine grained, minor laminae 50° to core axis, minor satin spar filled fractures	R-2342	39.14-39.41	76.73	2.11	0.012
39.41-48.16	Gypsum-anhydrite, light grey to light blue grey, fine- to medium-grained, massive to vaguely laminated, laminae of light brown carbonate and dark grey siltstone/ mudstone 80-85° to core axis	R-2343	39.41-40.84	94.13	2.05	0.009
		R-2344	40.84-42.37	92.02	3.34	0.020
		R-2345	42.37-43.89	66.89	28.22	0.497
		R-2346	43.89-45.42	26.28	68.51	0.523
		R-2347	45.42-46.94	5.30	93.46	0.111
		R-2348	46.94-48.16	11.80	87.40	0.046
48.16-48.52	Limestone, light to medium brownish grey, fine grained, dolomitic, minor intermixed gypsum, vaguely laminated at top, massive below					
48.52-56.75	Gypsum, white to light blue grey, fine- to coarse-grained, anhydritic in part, minor intermixed dark grey siltstone-dolostone, grey-green mudstone interbed at 50.78-50.87 m	R-2349	48.52-49.99	53.99	41.34	0.107
		R-2350	49.99-51.51	88.78	7.87	0.100
		R-2351	51.51-53.04	57.86	40.18	0.096
		R-2352	53.04-54.56	89.83	1.72	0.042
		R-2353	54.56-56.08	90.83	1.45	0.018
		R-2354	56.08-56.75	93.36	2.59	0.011
56.75-58.22	Mudstone, medium to dark greenish grey, minor gypsum interbed at 57.91 m, minor satin spar filled fractures					
58.22-60.49	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor satin spar, minor intermixed dark grey siltstone	R-2355	58.22-59.44	93.22	3.11	0.024
		R-2356	59.44-60.49	86.77	2.90	0.010
60.49-61.45	Dolostone, light to medium brownish grey, medium- to coarse-grained, vague laminae contorted, common intermixed gypsum					
61.45-69.74	Gypsum/anhydrite, light grey to medium blue-grey, coarse- to fine-grained (gypsum to anhydrite), minor wisps and patches of dark grey mudstone/siltstone	R-2357	61.45-63.09	66.22	31.21	0.066
		R-2358	63.09-64.62	73.44	16.88	0.081
		R-2359	64.62-66.14	18.92	75.61	0.134
		R-2360	66.14-67.67	49.21	42.48	0.066
		R-2361	67.67-69.19	11.85	79.93	0.042
		R-2362	69.19-69.74	22.89	63.11	0.049
69.74-72.30	Siltstone, dark grey, variably shaly, interbeds of light to medium grey sandstone, minor satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
72.30-72.54	Anhydrite, light blue grey, fine grained, massive, minor intermixed light brown dolostone at base, not sampled					
72.54-74.98	Dolostone, light brown, medium- to coarse-grained, common intermixed light blue anhydrite in top half of unit and reddish-brown siltstone in bottom half of unit, laminae 75-85° to core axis					
74.98-76.81	Siltstone, reddish brown, inter-laminae of light brown dolostone and light grey sandstone, minor satin spar filled fractures					
76.81-77.11	Gypsum, white, medium- to coarse-grained, wisps and interbeds of red siltstone at base of unit, not sampled					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy

Geologist: G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	52.40 m
Hole Number:	MUR-90-16	**Azimuth:**	
Latitude:	44°59'8.51"	**Dip:**	90°
	3° MTM 409815.00 m	**Started:**	September 20, 1990
Longitude:	63°10'6.07"	**Completed:**	September 26, 1990
	3° MTM 4983502.00 m	**Ultimate Depth:**	90.22 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-17.68	Overburden					
17.68-19.32	Gypsum, light to medium grey, medium- to coarse-grained, vaguely laminated with fine grained, dark grey siltstone	R-2363	17.68-19.32	90.93	0.41	0.006
19.32-20.33	Siltstone, medium to dark grey, fine- to medium-grained, common patches of gypsum					
20.33-23.23	Gypsum, light to medium grey, fine- to coarse-grained, selenitic in part, silty laminae throughout 80° to core axis	R-2364 R-2365	20.33-21.64 21.64-23.23	88.78 88.01	1.90 2.15	0.007 0.007
23.23-23.50	Breccia, light to medium grey mud matrix with clasts of gypsum, siltstone and dolostone					
23.50-23.90	Siltstone, medium to dark grey, fine grained, patches of light grey, fine- to medium-grained gypsum					
23.90-26.21	Gypsum, light to medium grey, medium- to coarse-grained, common intermixed dark grey siltstone/dolostone	R-2366 R-2367	23.90-24.99 24.99-26.21	89.30 62.83	2.17 2.29	0.006 0.006
26.21-26.37	Siltstone, medium to dark grey, fine grained, massive, minor satin spar filled fractures					
26.37-32.37	Gypsum, light to medium grey, fine- to coarse-grained, silty patches at base of unit	R-2368 R-2369 R-2370 R-2371	26.37-27.74 27.74-29.26 29.26-30.78 30.78-32.37	94.22 95.94 93.70 76.30	2.64 2.61 3.42 2.54	0.007 0.003 0.002 0.005
32.37-32.83	Siltstone, medium to dark grey, fine- to medium-grained, dolomitic in part, massive, minor satin spar filled fractures					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
32.83-36.18	Gypsum, light to medium grey, medium- to coarse-grained, silty at top with laminae 80° to core axis, silty at base with nodular texture	R-2372	32.83-34.44	86.05	2.80	0.008
		R-2373	34.44-36.18	86.34	3.05	0.003
36.18-40.23	Siltstone, medium to dark grey, muddy in part, dolomitic, minor gypsum nodules and interbeds					
40.23-41.85	Gypsum, light to medium grey, medium- to coarse-grained, minor siltstone wisps and interlaminae	R-2374	40.23-41.85	93.79	1.47	0.008
41.85-42.00	Mudstone, medium to dark grey, calcareous, massive					
42.00-43.13	Gypsum, light to medium grey, vague laminae and wisps of dark grey shaly siltstone	R-2375	42.00-43.13	90.07	0.93	0.009
43.13-43.34	Mudstone, as above, small gypsum nodules at base of unit					
43.34-45.66	Gypsum, light to medium grey, medium- to coarse-grained, minor wisps of siltstone, patches of mudstone	R-2376	43.34-44.50	91.93	1.11	0.008
		R-2377	44.50-45.66	84.48	0.97	0.008
45.66-46.02	Mudstone, as above					
46.02-47.40	Gypsum, light to medium grey, medium- to coarse-grained, minor wisps and patches of siltstone/ mudstone	R-2378	46.02-47.40	84.05	1.87	0.007
47.40-47.79	Mudstone, as above					
47.79-62.82	Gypsum, light to medium grey, medium- to coarse-grained, minor to common wisps and patches of siltstone/mudstone	R-2379	47.79-49.07	93.89	2.77	0.007
		R-2380	49.07-50.60	84.67	2.38	0.007
		R-2381	50.60-52.12	72.05	10.80	0.006
		R-2382	52.12-53.64	92.55	2.03	0.010
		R-2383	53.64-55.17	93.89	2.24	0.008
		R-2384	55.17-56.69	92.93	2.25	0.012
		R-2385	56.69-58.22	96.75	1.69	0.005
		R-2386	58.22-59.74	95.99	3.20	0.008
		R-2387	59.74-61.26	90.83	1.67	0.011
		R-2388	61.26-62.82	93.65	2.30	0.010
62.82-62.94	Mudstone, medium to dark grey, calcareous, clayey, minor gypsum clasts					

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
62.94-66.87	Gypsum, light to medium grey, medium- to coarse-grained, selenitic, minor wisps and patches of dark grey siltstone, petroliferous dolostone at 66.11-66.32 m	R-2389	62.94-64.31	96.61	1.53	0.008
		R-2390	64.31-65.84	92.84	1.97	0.008
		R-2391	65.84-66.87	81.70	2.84	0.016
66.87-68.00	Breccia, greyish-green mudstone matrix					
68.00-70.74	Gypsum, light to medium grey, fine- to coarse-grained, minor wisps of dark grey siltstone	R-2392	68.00-69.49	95.99	1.89	0.007
		R-2393	69.49-70.74	89.49	2.12	0.004
70.74-71.54	Dolostone, light greyish brown, fine grained, laminated 70° to core axis, minor patches of light grey gypsum					
71.54-81.93	Gypsum, light grey to light blue grey, anhydritic in lower portion of unit, minor wisps and patches of dark grey siltstone and light brown dolostone	R-2394	71.54-72.85	94.03	2.66	0.006
		R-2395	72.85-74.37	94.89	2.04	0.008
		R-2396	74.37-75.90	92.26	5.04	0.020
		R-2397	75.90-77.42	51.46	44.51	0.025
		R-2398	77.42-78.94	46.87	49.83	0.016
		R-2399	78.94-80.47	8.89	79.96	0.048
		R-2400	80.47-81.93	55.23	43.55	0.025
81.93-85.95	Siltstone, medium to dark grey, fine grained, massive, minor fine grained sandstone interbeds, minor satin spar filled fractures					
85.95-88.45	Dolostone, light brownish grey, medium- to coarse-grained, abundant intermixed gypsum, minor reddish-brown siltstone					
88.45-89.73	Siltstone, reddish brown, massive to finely laminated sandy laminae 80-85° to core axis					
89.73-90.22	Gypsum, light grey, medium- to coarse-grained, not sampled					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	40.29 m
Hole Number:	MUR-90-17	**Azimuth:**	
Latitude:	44°59'24.25"	**Dip:**	90°
	3° MTM 410059.00 m	**Started:**	September 27, 1990
Longitude:	63°9'54.56"	**Completed:**	October 1, 1990
	3° MTM 4983992.00 m	**Ultimate Depth:**	74.98 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-20.73	Overburden					
20.73-21.98	Gypsum, light grey, fine- to medium-grained, minor light brown carbonate interlaminae 65-70° to core axis	R-2401	20.73-21.98	89.06	2.22	0.007
21.98-29.05	Breccia, dark grey mudstone/siltstone matrix, dolomitic in part, siltstone and gypsum clasts					
29.05-32.06	Gypsum, light to medium grey, medium- to coarse-grained, common wisps, patches and minor interbeds of greyish-brown dolostone and dark grey siltstone	R-2402	29.05-30.48	95.56	1.29	0.007
		R-2403	30.48-32.06	88.30	0.78	0.008
32.06-32.31	Siltstone, as above					
32.31-34.69	Gypsum, as above	R-2404	32.31-33.53	89.78	2.13	0.004
		R-2405	33.53-34.69	80.17	1.24	0.006
34.69-35.27	Mudstone, greenish grey, massive, clayey in part, gypsum patches at base of unit					
35.27-35.66	Gypsum, light to medium grey, medium- to coarse-grained, minor wisps and patches of siltstone	R-2406	35.27-35.66	90.50	3.11	0.006
35.66-36.12	Mudstone, as above					
36.12-37.03	Gypsum, as above	R-2407	36.12-37.03	93.31	1.51	0.008
37.03-37.37	Mudstone, as above					
37.37-47.64	Gypsum, light to medium grey, fine- to medium-grained, selenitic, minor wisps and laminae of dark grey siltstone/dolostone	R-2408	37.37-38.71	93.70	1.19	0.007
		R-2409	38.71-40.23	84.47	3.09	0.005
		R-2410	40.23-41.76	85.81	2.48	0.005
		R-2411	41.76-43.28	92.98	3.64	0.004
		R-2412	43.28-44.81	93.27	3.21	0.004
		R-2413	44.81-46.33	92.45	3.68	0.005
		R-2414	46.33-47.64	96.75	1.57	0.004

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
47.64-49.62	Breccia, dark grey, calcareous mudstone/siltstone matrix, gypsum and siltstone clasts					
49.62-52.24	Gypsum, light grey, fine- to medium-grained, minor wisps and contorted laminae of dark grey siltstone, mudstone interbed at 50.32-50.44 m	R-2415	49.62-50.90	89.35	1.74	0.004
		R-2416	50.90-52.24	90.73	2.63	0.003
52.24-54.07	Breccia, as above					
54.07-54.89	Gypsum, light grey, fine- to medium-grained, minor wisps of light brown carbonate	R-2417	54.07-54.89	95.03	3.31	0.007
54.89-55.38	Limestone, light to medium greyish brown, gypsum patches at top of unit, mudstone interbeds in mid unit, massive at base of unit					
55.38-65.35	Gypsum, light to medium grey to light blue grey, anhydritic towards base of unit, minor wisps and interbeds of dark grey siltstone	R-2418	55.38-56.69	92.79	1.29	0.006
		R-2419	56.69-58.22	96.28	1.82	0.004
		R-2420	58.22-59.74	94.75	1.55	0.007
		R-2421	59.74-61.26	76.16	19.91	0.016
		R-2422	61.26-62.79	82.85	11.37	0.028
		R-2423	62.79-64.31	47.54	41.05	0.042
		R-2424	64.31-65.35	85.10	5.14	0.025
65.35-69.25	Interbedded and interlaminated light grey, fine grained sandstone and dark grey siltstone, minor satin spar filled fractures 80° to core axis, laminae 85-90° to core axis					
69.25-70.77	Intermixed light grey gypsum and light brown, coarse grained dolostone					
70.77-72.42	Intermixed light brown, coarse grained dolostone and reddish-brown, fine grained siltstone					
72.42-74.07	Siltstone, reddish brown, fine grained, massive, minor dolostone laminae 85° to core axis					
74.07-74.98	Gypsum, light grey, minor intermixed reddish brown siltstone, not sampled					
	End of hole					

Drilling Performed by: Nova Scotia Department of Mines and Energy

Geologist: G. C. Adams

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
DIAMOND DRILL RECORD

Property:	Murchyville	**Elevation:**	45.08 m
Hole Number:	MUR-90-18	**Azimuth:**	
Latitude:	44°59'41.63"	**Dip:**	90°
	3° MTM 409904.00 m	**Started:**	October 2, 1990
Longitude:	63°10'1.24"	**Completed:**	October 3, 1990
	3° MTM 4984526.00 m	**Ultimate Depth:**	86.26 m
Datum:	Sea level		

Depth (m)	Formation	Sample Number	Sample Width (m)	Gypsum %	Anhydrite %	NaCl %
0-21.64	Overburden					
21.64-83.21	Not yet logged in detail, interbedded carbonates and clastics with brecciated horizons					
83.21-86.26	Gypsum, light grey variable intermixed carbonate and siltstone, not sampled Hole abandoned due to drilling difficulties					

Drilling Performed by: Nova Scotia Department of Mines and Energy **Geologist:** G. C. Adams

MAPS
NOT
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